Studies on Sensory Deprivation: III. Part 8. General Discussion and Concluding Remarks

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PART 8. GENERAL DISCUSSIONS AND CONCLUDING REMARKS

By

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The results of our previous studies are summarized and an attempt is made to integrate the various differentiating effects of sensory deprivation. Besides our first hypothesis, that sensory deprivation impairs the higher mental functioning and facilitates the lower functioning, the second hypothesis is presented: Sensory deprivation impairs the cognitive and perceptual processes of the external world and facilitates the inner experience or body-oriented processes.

Our previous experiments indicated that the sensory deprivation impaired or deteriorated the higher mental functioning and facilitated the lower functioning, while it did not produce any noteworthy effect upon the basic physiological function[1].

Brownfield, C.A. pointed out that two opposing hypotheses have "emerged from research in sensory deprivation: it imparis mental functioning and it facilitates mental functioning"[2]. He considered it unwise to conclude that sensory isolation results in deterioration or facilitation of mental function until more research is accomplished. But he seems to reduce such multiple and discrepant results, at least partly, to the differences of the experimental condition and additionally to the individual differences. Indeed the difference of the experimental condition may play some role in such differentiating effects, but in our studies the same experimental conditions brought about different effects upon different functions. Our results suggest, therefore, also that, in the study of sensory deprivation, we must not design to find any change of a single function, but catch a whole pattern of the changes of the various functions.

Our main attempt of the studies reported in the preceding papers was to reaffirm the differentiating effects of sensory deprivation of 24 hrs. under relatively strict conditions and to exmaine whether some additional hypothesis is necessary or not in order to find a complete explanation of the pattern of behavior changes during and after the sensory deprivation.

Here the results of our preceding experiments will be summarized and discussed, with reference to the results of our previous experiments.

Generally speaking, the present reports reaffirmed our previous hypothesis that sensory deprivation impairs the higher mental functioning and facilitates lower mental functioning. As to the lower order functions, gustatory sensation was

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sensitized and visual stimulus threshold lowered, and as to the higher order functions CFF value decreased, time estimation was deteriorated and perceptual organizing functions diminished. Organismic activation was as little affected by sensory deprivation as in the previous studies except that in EEG θ, δ, and β waves were suppressed and α or suppressed α were dominant for greater part of the experimental period, showing the fall of consciousness level. Between the level of activation recorded electro-physiolgically and the frequency of occurrence of overt behavior observed by experimenters through television, there was a nearly parallel relation.

We found, however, other evidence that some mental functions which do not seem to belong to lower functions are also facilitated. The results of TAT indicate that the Ss after sensory deprivation were induced to the state of hunger for external and social stimuli and ready to express actively verbal responses, while the function of organizing the perceived stimuli is disturbed, as seen in Rorschach test in our preliminary studies[3].

Several investigators noticed also that Ss often experienced various imagery more or less vividly during sensory deprivation and also learning performance became better[2][4], while in our Ss occurrences of mainly basic or elemental hallucinations were reported but not so often. Now, visionary and learning processes are concerned with the inner performance, and perceptual-organizing processes are concerned with the external world. Therefore, it might be reasonable to assume that sensory deprivation impairs the cognitive and perceptual process of the external world, while the inner experience or body-oriented processes such as recall and imagery, two points discrimination, and gustatory sensation, result in increased activation.

And this may be the second hypothesis that explains the differentiating effects of sensory deprivation, if our assumption that sensory deprivation impairs the higher functionings and facilitates the lower functionings can be called the first hypothesis.

Some investigators classified the subjects into two categories: the subject oriented primarily toward his inner life or experience, and the subject oriented toward the external world, or the body-oriented (field independent) and the field dependent. And they considered that the former subjects were less disturbed than the latter ones[2]. We do not deny these findings but it is also true that the body-oriented functions were generally facilitated and the field-dependent ones were impaired, without any notable individual differences.

Brownfield, C.A. discussed the individual differences of the subjects' responses during and after sensory deprivation. Some subjects show deterioration of mental functions and often express the annoyance or discomfort and sometimes can not finish the experiment, while some subjects showed less or no disturbance and sometimes sufficiently comfortable enough to tide over the whole period of sensory deprivation[2].

Regarding our subjects, they were generally rather tolerant of the sensory deprivation. In preliminary studies (1961–1962), all of 10 subjects stayed in the experimental room for about 48 hrs. and in the next studies (1962), 9 out of 11 subjects could endure

the isolation situation of 48 hrs. under stricter conditions, though almost every subject expressed some verbal complaints, especially in the second half of the isolation period. In the present studies 10 out 11 subjects could remain about 24 hrs. in the experimental room without any notable complaints. Compared with the American and Canadian data, our subjects seem to show more tolerance for the sensory deprivation[6].

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(Received Janary 10, 1965)

Zusammenfassung

Die Resultate der früheren Untersuchungen werden kurz zusammengefasst und diskutiert. Und neben der ersten Voraussetzung, dass die sinnliche Entziehung auf die hohen Funktionen hemmend und auf die niederen Funktionen förderlich wirkt, wird eine andere Hypothese aufgestellt: die sinnliche Entziehung hemmt die anerkennenden und wahrnehmenden Prozesse der Aussenwelt und fördert die innere Erfahrung oder Körper-orientierten Prozesse.